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10/563,494	01/04/2006	Steinar Bjornstad	OSL-034	8273

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EXAMINER	
CURS, NATHAN M	
ART UNIT	PAPER NUMBER
2613	
MAIL DATE	DELIVERY MODE
12/21/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,494	BJORNSTAD, STEINAR	
	Examiner	Art Unit	
	NATHAN M. CURS	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-11,13-20 and 22-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-8,10,14-20,23,24,26,30 and 32-34* is/are rejected.

7)☒ Claim(s) *9,11,13,22,25,27-29 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites "the change of said first and second states of polarisation." There is lack of antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-7, 10, 14-20, 23, 24, 26, 30, 32-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. ("Kim") (US Patent Application Publication No. 2003/0138253) in view of Admitted Prior Art ("APA") (specification page 4 lines 10-25) and further in view of Schonfelder (US Patent No. 6580535).

Regarding claim 32, Kim discloses a communication network arrangement for handling packets within optical or combined optical/electrical packet switched networks comprising: means for dividing packets with the network by first and second QoS classes and means for transmitting the packets of the first QoS in a first wavelength and transmitting packets of the second QoS in a second wavelength (fig. 1 elements 140, 210 and 150 and paragraphs 0023-0028). Kim discloses transmitting the packets of different QoS on different respective wavelengths, but does not disclose transmitting them on different states of polarization. However, APA discloses that separating different optical data channels by orthogonal polarization in the same manner that different optical data channels may be separated by wavelength is known (specification col. 4 lines 17-23). Further, Schonfelder discloses that both WDM and polarization multiplexing increase efficiency and can be used together (col. 1 lines 49-56 and col. 3 lines 38-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to use both WDM and orthogonal polarization multiplexing and demultiplexing for the separate QoS channels, and the CHP channel, of Kim, placing two QoS channels of differing QoS on two different polarizations per wavelength, for multiple wavelengths, as well as putting the CHP channel on one of the polarizations on one of the wavelengths, to provide the benefit of increased efficiency for transmitting all the channels of Kim, based on the efficiency suggestion of Schonfelder.

Regarding claim 2, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 32, characterized in that the means for transmitting packets while transmitting said packets of said second QoS in

said second state of polarization, has means for simultaneously transmitting a header in said first state of polarization (Kim: fig. 1 and paragraphs 0023-0028 and APA: col. 4 lines 17-23, as applicable in the combination, for transmitting the different QoS channels on different polarizations and the CHP packet on another polarization, as a described above).

Regarding claim 3, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 32, characterized in that said first and said second states of polarization are interchanged at the beginning of each packet (Kim: fig. 1 and paragraphs 0023-0028 and APA: col. 4 lines 17-23, as applicable in the combination, for the case when packets of two different QoS happening to arrive at the system at alternating times). This claim only corresponds to a circumstantial arrival time sequence of packets to the apparatus without further limiting the apparatus itself, and is thus only a non-limiting intended use of the apparatus.

Regarding claim 4, the combination of Kim and APA and Schonfelder discloses a communication network arrangement according to claim 32, characterized in that the second and first states of polarization are substantially orthogonal states (APA: col. 4 lines 17-23).

Regarding claim 5, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 32, where the means for transmitting packets further comprises at least one core node (Kim: fig. 1) with means for demultiplexing the received packets by means of polarisation, and means for multiplexing packets for forwarding by means of polarisation (APA: col. 4 lines 17-23

and Schonfelder: col. 1 lines 49-56 and col. 3 lines 38-43, where using polarization multiplexing and demultiplexing, as in the combination, inherently involves some means for doing the multiplexing and demultiplexing), but as combined above does not disclose that the node has SOP alignment means for the received packet. However, Schonfelder also discloses using alignment for polarization multiplexing and demultiplexing (fig. 1 elements 103, 104, 123, 124, and col. 3 lines 26-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to use alignment for the polarization multiplexing and demultiplexing of the combination, the alignment ensuring that the different polarization signals do not interfere.

Regarding claim 6, the combination of Kim and APA and Schonfelder discloses a communication network arrangement according to claim 32, wherein the network arrangement further comprises, at least one core node having means for demultiplexing packets by polarisation and separating packets according to the packets state of polarization (APA: col. 4 lines 17-23 and Schonfelder: col. 1 lines 49-56 and col. 3 lines 38-43, where using polarization multiplexing and demultiplexing, as in the combination, inherently involves some means for doing the multiplexing and demultiplexing) and said at least one core node has a first optical switching matrix and a second electronic switching matrix (Kim: fig. 1 elements 210 and 120, respectively).

Regarding claim 7, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 6, characterized in that the first optical switching matrix is a wavelength router and a second electronic switching matrix is a packet switch (Kim: fig. 1 elements 210 and 120, respectively).

Regarding claim 10, the combination of Kim and APA and Schonfelder discloses a communication network arrangement according to claim 32. The combination does not specify that the first QoS class represents GS-packets and the second QoS class represents BE-packets. However, reciting that certain QoS classes merely represent BE or GS packet types is only a non-functional descriptive material limitation. The BE/GS limitation in this case only pertains to how the packets are valued and, as such, merely constitutes descriptive material. When presented with a claim comprising descriptive material, an Examiner must determine whether the claimed descriptive material should be given patentable weight. While all claim limitations must be considered when determining patentability, the Examiner need not give patentable weight to nonfunctional descriptive material absent a new and unobvious functional relationship between the descriptive material and the substrate. In this case, no functional relationship exists between the substrate (i.e., the apparatus) and the descriptive material (i.e., the value designation of the packets). At best, the descriptive material merely pertains to the content of the packets themselves. Accordingly, the recited BE/GS packet designations pertaining to the recited apparatus is nonfunctional descriptive material in this claim that does not patentably distinguish over the prior art.

Regarding claim 14, the combination of Kim and APA and Schonfelder discloses a communication network arrangement according to claim 32, characterized in that the network arrangement is adapted to use the change of said first and second states of polarisation for separating one or more QoS (Kim: fig. 1 and paragraphs 0023-0028 and

APA: col. 4 lines 17-23, as applicable in the combination, where the different QoS being put on different polarizations are polarization changes).

Regarding claim 15, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 6, characterized in that the at least one core node is adapted to switch packets electronically or optically according to which QoS class the packets are associated with (Kim: fig. 1 elements 210 and 120, optically switch data packets according to QoS and electrically switching CHP packets from router 120 based on QoS information).

Regarding claim 16, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 15, characterized in that a number of wavelengths is reserved for the at least one core node of the network adapted to switch packets electronically (Kim: fig. 1, the multiple λ_0 wavelengths for CHP packets, switched electronically in router 120, as applicable for the combination for using wavelength and polarization to separate channels).

Regarding claim 17, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 15, characterized in that a number of wavelengths is reserved for the at least one core node of the network adapted to switch packets optically (Kim: fig. 1 element 210 as applicable in the combination).

Regarding claim 33, the combination of Kim and APA and Schonfelder discloses a communication network arrangement according to claim 32, wherein the means for transmitting packets comprises means for interleaving packets of the second QoS class

with packets of the first QoS class (Kim: fig. 1 and paragraphs 0023-0028 and APA: col. 4 lines 17-23, as applicable in the combination, for the case when packets of two different QoS happening to arrive at the system at alternating times).

Regarding claim 34, the combination of Kim and APA and Schonfelder discloses a communication network arrangement according to claim 32, wherein the means for transmitting comprises means for simultaneously transmitting packets of the first QoS class in a first state of polarization and transmitting packets of the second QoS in a second state of polarization, the states of polarization being substantially orthogonal (Kim: fig. 1 and paragraphs 0023-0028 and APA: col. 4 lines 17-23, as applicable in the combination described above).

Regarding claim 18, Kim discloses a method for handling packets within optical or combined optical/electrical packet switched networks, comprising, dividing packets of the ingress node as first and second QoS classes of packets, and transmitting packets of the first QoS class in a first wavelength and transmitting packets of the second QoS in a second wavelength (fig. 1 elements 140, 210 and 150 and paragraphs 0023-0028), by either interleaving packets of the second QoS class of packets with packets of the first QoS class or by simultaneously transmitting packets of a first QoS class in a first wavelength and transmitting packets of a second QoS in a second wavelength (Kim: fig. 1 and paragraphs 0023-0028). Kim discloses transmitting the packets of different QoS on different respective wavelengths, but does not disclose transmitting them on different states of polarization. However, APA discloses that separating different optical data channels by orthogonal polarization in the same manner that different optical data

channels may be separated by wavelength is known (specification col. 4 lines 17-23). Further, Schonfelder discloses that both WDM and polarization multiplexing increase efficiency and can be used together (col. 1 lines 49-56 and col. 3 lines 38-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to use both WDM and orthogonal polarization multiplexing and demultiplexing for the separate QoS channels, and the CHP channel, of Kim, placing two QoS channels of differing QoS on two different polarizations per wavelength, for multiple wavelengths, as well as putting the CHP channel on one of the polarizations on one of the wavelengths, to provide the benefit of increased efficiency for transmitting all the channels of Kim, based on the efficiency suggestion of Schonfelder.

Regarding both the ingress and core nodes, although Kim does not provide details about a specific topology, Kim mentions the fig. 1 core node in the context of a network (paragraph 0001). It would have been obvious to one of ordinary skill in the art at the time of the invention to use multiple nodes like that of Fig. 1 in a conventional network configuration (e.g. star, mesh, etc.), where the entry point nodes for the signals are ingress nodes and inner nodes are core nodes, to provide the advantage of communication among various physical separate cities/regions/etc. using flexible routing.

Regarding claim 19, the combination of Kim and APA and Schonfelder discloses a method according to claim 18, characterized in transmitting said packets of said second QoS in said second state of polarization and simultaneously transmitting a header associated with the second QoS in said first state of polarization (Kim: fig. 1 and

paragraphs 0023-0028 and APA: col. 4 lines 17-23, as applicable in the combination, for transmitting the different QoS channels on different polarizations and the CHP packet on another polarization, as a described above).

Regarding claim 20, the combination of Kim and APA and Schonfelder discloses a method according to claim 18, characterized by interchanging said first and said second states of polarization at the beginning of each packet (Kim: fig. 1 and paragraphs 0023-0028 and APA: col. 4 lines 17-23, as applicable in the combination, for the case when packets of two different QoS happening to arrive at the system at alternating times).

Regarding claim 23, the combination of Kim and APA and Schonfelder discloses a method according to claim 18, further comprising, separating packets into a first and a second class of quality, wherein packets of the first class are routed using a predefined route within a communication network (Kim: paragraphs 0023-0028, where the predefined route is the route determined by the node router, manager and scheduler), and packets of the second class are switched by a packet switch module (Kim : fig. 1 element 210 is switching data packets).

Regarding claim 24, the combination of Kim and APA and Schonfelder discloses a method according to claim 18, characterized in that at the ingress node packets are separated into two classes by setting switches based on header information from said packets (Kim: fig. 1, CHP packets determining the QoS separation switching of data packets using switch element 210).

Regarding claim 26, the combination of Kim and APA and Schonfelder discloses a method according to claim 22, characterized in that at least one core node in the optical packet switched network is SOP-realigning received packets (Kim: fig. 1, APA: col. 4 lines 17-23 and Schonfelder: col. 1 lines 49-56 and col. 3 lines 38-43, as applicable in the combination, where polarization multiplexing the received packets when they are being retransmitted out of the node reads on SOP-realigning the packets).

Regarding claim 30, the combination of Kim and APA and Schonfelder discloses a method according to claim 18. The combination does not specify assigning the first QoS class to GS-packets and assigning the second QoS class to BE-packets. However, reciting that certain QoS classes represent BE or GS packet types is only a non-functional descriptive material limitation. The BE/GS limitation in this case only pertains to how the packets are valued and, as such, merely constitutes descriptive material. When presented with a claim comprising descriptive material, an Examiner must determine whether the claimed descriptive material should be given patentable weight. While all claim limitations must be considered when determining patentability, the Examiner need not give patentable weight to nonfunctional descriptive material absent a new and unobvious functional relationship between the descriptive material and the substrate. In this case, no functional relationship exists between the substrate (i.e., the components carrying out the method steps based on different QoS classes, not what traffic valuation those QoS classes represent) and the descriptive material (i.e., the valuation of the packets). At best, the descriptive material merely pertains to the content

of the packets themselves. Accordingly, the recited BE/GS packet designations pertaining to the recited apparatus is nonfunctional descriptive material in this claim that does not patentably distinguish over the prior art.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent Application Publication No. 2003/0138253) in view of APA (specification page 4 lines 10-25) and further in view of Schonfelder (US Patent No. 6580535) as applied to claim 32 above, and further in view of Glingener (US Patent Application Publication No. 2003/0090760).

Regarding claim 8, the combination of Kim, APA and Schonfelder discloses a communication network arrangement according to claim 32, but does not specify that the network arrangement further comprises an ingress node and at least one core node, said core node having at least one polarisation beam splitter (PBS) and at least one optical demultiplexer. Regarding both the ingress and core nodes, although Kim does not provide details about a specific topology, Kim mentions the fig. 1 core node in the context of a network (paragraph 0001). It would have been obvious to one of ordinary skill in the art at the time of the invention to use multiple nodes like that of Fig. 1 in a conventional network configuration (e.g. star, mesh, etc.), where the entry point nodes for the signals are ingress nodes and inner nodes are core nodes, to provide the advantage of communication among various physical separate cities/regions/etc. using flexible routing.

Further, Glingener discloses how to polarization multiplex and demultiplex using a polarization multiplexer (PM) and polarization beam splitter (PBS) (fig. 1 and col. 3 lines 26-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a PM for each polarization multiplexing of the combination, and a PBS for each polarization demultiplexing, since using the PM and PBS minimizes the number of components necessary (compared to e.g. Schonfelder which uses more components).

Allowable Subject Matter

6. Claims 9, 11, 13, 22, 25, 27-29, 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments of 13 October 2010 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN M. CURS whose telephone number is (571)272-3028. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN M CURS/

Primary Examiner, Art Unit 2613